



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,595	05/25/2006	Rainer Scharp	SCHARP-9 PCT	6941
25889	7590	03/10/2009		
COLLARD & ROE, P.C. 1077 NORTHERN BOULEVARD ROSLYN, NY 11576				
EXAMINER				
AFZAL, SARANG				
ART UNIT		PAPER NUMBER		
3726				
MAIL DATE		DELIVERY MODE		
03/10/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,595

Applicant(s)

SCHARP, RAINER

Examiner

SARANG AFZALI

Art Unit

3726

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Avevou (US 4,651,631) in view of Ruhle (US 6,837,298) and Dunn (GB 2035448 A).

As applied to claim 1, Avevou (Fig. 2) teaches a method for producing a piston for an internal combustion engine, having an essentially cylindrical base body (10) made of aluminum (col. 2, line 46), whose one face forms a piston crown (top face), having pin bosses with pin bores (col. 1, lines 18-21 but not shown in figures) disposed on the underside of the base body (10), facing away from the piston crown (top surface), and having skirt elements (not shown) that connect the pin bosses with one another, wherein the base body (10) is produced using the forging method (col. 2, line 46), whereby a recess (shown on top right hand corner of Fig. 2, but not labeled) is formed into the radially outer region of the piston crown and a ring element (11) made of aluminum is given such a shape, that it fits into the recess and welded to the base body (10), and that the piston is given its final shape by means of a cutting production (i.e. machining of ring groove 14d, Fig. 2, col. 2, lines 48-49).

Avezou fails to explicitly teach the step wherein the free shanks of an essentially toroid-shaped cooling channel, which is C-shaped in cross- section and radially open to the outside, and produced from sheet steel, are welded onto a cylindrical surface of a ring insert made of NiResist, which surface lies radially on the inside, and the step wherein the ring insert provided with the cooling channel is cast into a ring element made of aluminum, using the composite casting method.

Ruhle teaches (Fig. 1, col. 1, lines 39-57) a method for producing a piston with a cooled ring carrier (1), consisting of a ring carrier part (2) and a sheet-metal part (3) wherein the free shanks of an essentially toroid-shaped cooling channel, which is C-shaped in cross- section and radially open to the outside, and produced from sheet steel, are welded onto a cylindrical surface of a ring insert made of NiResist, which surface lies radially on the inside in order to prevent defects in the ring carrier bond of cooled ring carriers (col. 1, lines 39-41).

Dunn teaches that it is well known in the piston art to provide inserts such inserts being of a different metal from that of the body of the piston for the purpose of providing resistance to operating conditions tending to produce cracking of the crown and undue wear of the piston ring grooves (specification, page 1, col. 1, lines 12-20). Dunn further teaches that a suitable composite insert can therefore be a single casting in which all the parts are integral or in a form easily fabricated in which both castings and pressings are used (specification, page 2, col. 1, lines 35-38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have provided Avezou with a carrier ring assembly made of a sheet

steel with a C-shaped cross-section welded onto the cylindrical surface of a ring insert as taught by Ruhle in order to provide a cooling channel with effective bonding between ring and the channel part . It would have been further obvious to one of ordinary skill in the art at the time of invention to have made the ring element of Avezou by incorporating the casting method of Dunn in order to provide an integral insert element that would result in the ease of manufacturing and assembly.

As applied to claim 2, Avezou/Ruhle/Dunn teach the invention cited. Avezou further teaches that both the recess formed in the radially outer edge region of the piston crown and the ring element fitted in there are rectangular in cross-sections (Fig. 2).

As applied to claims 3 and 4, Avezou/Ruhle/Dunn teach the invention cited. Avezou further teaches (Fig. 6) that the ring element (11) is given such a shape that its surface that lies radially on the inside forms a weld seam (50), with the base body (10), that narrows conically towards the piston crown (toward top) as in claim 3 and that the ring element (11) is given such a shape that its surface that lies axially in the direction of the pin bore (toward the bottom of Fig. 3, but not shown) forms a weld seam (51), with the base body (10), that has an orientation that deviates from the radial axis direction.

Response to Arguments

3. Applicant's arguments, see Remarks, pages 1-4, filed 5/23/2008, with respect to the rejection(s) of claim(s) 1-4 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Avezou, Ruhle and Dunn.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARANG AFZALI whose telephone number is (571)272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sarang Afzali/
Examiner, Art Unit 3726
3/2/2009

/DAVID P. BRYANT/
Supervisory Patent Examiner, Art Unit 3726